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Michael J. Dooley

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EXAMINER

HOLMES, MICHAEL B

ART UNIT

PAPER NUMBER

2121

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/754,915

Applicant(s)

DOOLEY ET AL.

Examiner

Michael B. Holmes

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE (3) MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16,22,23,27,29-31,36,37,39,41 and 44-57 is/are rejected.
- 7) ☒ Claim(s) 17-21,24-26,28,32-35,38,40,42 and 43 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>05172004/06182004/10062005</u> | 6) <input type="checkbox"/> Other: _____ |



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Examiner's Detailed Office Action

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).
3. Claims 1, 23, 36 & 51 are rejected under 35 U.S.C. 102(e) as being anticipated by *Zlatsin et al.* (USPN 6,377,296 B1).

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Regarding claim 1. *Zlatsin et al.* describes a media and gesture recognition method using a computer system, the method comprising:

viewing and generating a digital representation of a printed media using an electronic visual sensor during a first interaction session; [see C 3, L 38-42 & FIG. 1, C 4, L 33 to C 6, L 24]

identifying the printed media using the digital representation of the printed media; [see C 5, L 54-62]

retrieving information corresponding to the viewed printed media from a computer system database; [see FIG. 1, C 4, L 33 to C 6, L 24]

using the electronic visual sensor to view at least a first gesture of a user relative to at least a portion of the printed media; [see FIG. 1, C 4, L 33 to C 6, L 24]

interpreting the first finger gesture as a first command; [see FIG. 1, C 4, L 33 to C 6, L 24] and based at least in part on the first gesture and the retrieved information, providing at least a portion of the retrieved information. [see FIG. 1, C 4, L 33 to C 6, L 24]

Regarding claim 23. *Zlatsin et al.* describes a vision-based method of processing user interaction with printed media the method comprising:

receiving at a computer system a digital representation of a first image of a printed media, wherein the first image was obtained from a first imaging device; [see FIG. 1, C 4, L 33 to C 6, L 24]

based at least in part on the digital representation of the first image, retrieving corresponding information from a database; [see FIG. 1, C 4, L 33 to C 6, L 24]

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receiving a first digital representation of a first image of a user gesture relative to at least a portion of the printed media; [see FIG. 1, C 4, L 33 to C 6, L 24]

interpreting the first digital representation of an image of a user gesture; [see FIG. 1, C 4, L 33 to C 6, L 24] and

based at least in part on the interpretation of the user gesture and the retrieved database information, providing at least a portion of the retrieved information to the user. [see FIG. 1, C 4, L 33 to C 6, L 24]

Regarding claim 36. *Zlatsin et al.* describes a computer-based printed media interaction apparatus, the apparatus comprising:

an image sensor, the image sensor configured to view printed media; [see FIG. 1, C 4, L 33 to C 6, L 24]

a database including a mapping of regions of the printed media with corresponding actions; [see FIG. 1, C 4, L 33 to C 6, L 24]

a gesture tracking module that tracks a user gesture position relative to the printed media based at least in part on images from the image sensor; [see FIG. 1, C 4, L 33 to C 6, L 24] and

an interaction module that, based at least in part on the user gesture position and database information, provides at least a portion of the database information to the user. [see FIG. 1, C 4, L 33 to C 6, L 24]

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Regarding claim 51. *Zlatsin et al.* describes a media and gesture recognition apparatus, the apparatus comprising:

an image sensor that views printed media; [see FIG. 1, C 4, L 33 to C 6, L 24]

a recognition module that identifies the printed media based on image information from the image sensor; [see FIG. 1, C 4, L 33 to C 6, L 24]

a database that stores information that relates portions of the printed media with corresponding actions; [see FIG. 1, C 4, L 33 to C 6, L 24]

a gesture tracking module that identifies user gestures relative to the printed media based at least in part on images from the image sensor; [see FIG. 1, C 4, L 33 to C 6, L 24] and

an interaction module that, based at least in part on the user gesture and database information, provides at least a portion of the database information to the user. [see FIG. 1, C 4, L 33 to C 6, L 24]

Regarding claim 11. *Zlatsin et al.* describes the method as defined in claim 1, wherein the portion of the retrieved information is a word from the printed media. [see FIG. 1, C 4, L 33 to C 6, L 24]

Regarding claim 12. *Zlatsin et al.* describes the method as defined in claim 1, wherein the portion of the retrieved information is a sentence from the printed media. [see FIG. 1, C 4, L 33 to C 6, L 24]

Regarding claim 13. *Zlatsin et al.* describes the method as defined in claim 1, wherein the portion of the retrieved information is a title of the printed media. [see FIG. 1, C 4, L 33 to C 6,

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L 24]

Regarding claim 16. *Zlatsin et al.* describes the method as defined in claim 1, wherein the printed media is one of a book, a magazine, a musical score, and a map. [see FIG. 1, C 4, L 33 to C 6, L 24]

Regarding claim 31. *Zlatsin et al.* describes the method as defined in claim 23, further comprising providing the user with one or more audible media interaction prompts. [see C 6, L 25-38]

Regarding claim 39. *Zlatsin et al.* describes the apparatus as defined in claim 36, further comprising an exception module that informs the user when the printed media is moved. [see FIG. 6, C 6, L 58 to C 7, L 12]

Regarding claim 46. *Zlatsin et al.* describes the apparatus as defined in claim 36, further comprising a network link to information corresponding to the printed media. [see C 3, L 60-63]

Regarding claim 47. *Zlatsin et al.* describes the apparatus as defined in claim 36, further comprising a speaker that audibly provides the database information to the user. [see FIG. 1, C 4, L 33 to C 6, L 24]

Regarding claim 48. *Zlatsin et al.* describes the apparatus as defined in claim 36, further comprising a display that visually provides the database information to the user. [see FIG. 1, C 4,

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L 33 to C 6, L 24]

Regarding claim 49. *Zlatsin et al.* describes the apparatus as defined in claim 36, wherein the printed media is one of a magazine, a musical score, and a book. [see FIG. 1, C 4, L 33 to C 6, L 24]

Regarding claim 52. *Zlatsin et al.* describes the apparatus as defined in claim 51, wherein the apparatus is stationary. [see FIG. 1, C 4, L 33 to C 6, L 24]

Regarding claim 54. *Zlatsin et al.* describes the apparatus as defined in claim 51, further comprising a print media support apparatus. [see FIG. 1, C 4, L 33 to C 6, L 24]

Regarding claim 55. *Zlatsin et al.* describes the apparatus as defined in claim 51, wherein the database includes text from the printed media, the apparatus further comprising a speaker that audibly reads at least a portion of the text to the user. [see C 6, L 24-37]

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-4, 27, 29, 37 & 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Zlatsin et al.* (USPN 6,377,296 B1) in view of *Se et al.* "Vision-based Mobile Robot Localization and Mapping using Scale-Invariant Features, IEEE, 2001.

Zlatsin et al. has been discussed above and does not describe the limitations of claim 2-4, 27, 29, 37 & 53. However, *Se et al.* describes the limitations of claim 2-4, 27, 29, 37 & 53.

Regarding claim 2. *Se et al.* describes the method of claim 1, wherein identifying the printed media further comprises recognizing visual features that correspond to scale-invariant features (SIFT). [see 3.2 Matching Results & Figure 3, page 2054]. It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *Se et al.* because SIFT (Scale Invariant Feature Transform) was developed for image feature generation in object recognition applications.

Regarding claim 3. *Se et al.* describes the method as defined in claim 1, wherein the electronic visual sensor is mounted on a robot, wherein the robot positions itself so as to adequately view the printed media. [see 6.3 Viewpoint Variation, page 2057] It would have been obvious at the

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time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *Se et al.* because SIFT (Scale Invariant Feature Transform) was developed for image feature generation in object recognition applications.

Regarding claim 4. *Se et al.* describes the method as defined in claim 1, wherein the electronic visual sensor is automatically tilted to improve the viewing of the printed media. [see 6.3 Viewpoint Variation, page 2057] It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *Se et al.* because SIFT (Scale Invariant Feature Transform) was developed for image feature generation in object recognition applications.

Regarding claim 27. *Se et al.* describes the method as defined in claim 23, wherein the user gesture is used to select a map location in the printed media, and wherein providing at least a portion of the retrieved information to the user includes providing information related to geographical location correspond to the selected map location. [see Abstract & Introduction, page 2051-2052] It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *Se et al.* because SIFT (Scale Invariant Feature Transform) was developed for image feature generation in object recognition applications.

Regarding claim 29. *Se et al.* describes the method as defined in claim 23, wherein the first imaging device is mounted on an autonomous mobile apparatus, the method further comprising automatically positioning the autonomous mobile apparatus based on at least one image of the

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printed media. [see Abstract & Introduction, page 2051-2052 & 6.3 Viewpoint Variation, page 2057] It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *Se et al.* because SIFT (Scale Invariant Feature Transform) was developed for image feature generation in object recognition applications.

Regarding claim 37. *Se et al.* describes the apparatus as defined in claim 36, further comprising a plurality of motorized wheels under computer control used to position the image sensor to view the printed media. [see Abstract, *Examiner interprets and notes for the purposes of this discussion, a "mobile" robot is considered to be a robot that moves on solid surfaces, water, or air due to the controlled action of onboard motors or mechanical actuators, such as motorized wheels, tracks, legs, propellers, jets, and the like. A robot that moves only by the application of outside force, even if portable and easily carried, is not considered to be "mobile".*] It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *Se et al.* because SIFT (Scale Invariant Feature Transform) was developed for image feature generation in object recognition applications.

Regarding claim 53. *Se et al.* describes the apparatus as defined in claim 51, wherein the apparatus includes computer controlled motors that move the apparatus to view the printed media. [see Conclusion, page 2058, *Examiner interprets and notes for the purposes of this discussion, a "mobile" robot is considered to be a robot that moves on solid surfaces, water, or air due to the controlled action of onboard motors or mechanical actuators, such as motorized wheels, tracks, legs, propellers, jets, and the like. A robot that moves only by the application of*

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outside force, even if portable and easily carried, is not considered to be "mobile".]] It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *Se et al.* because SIFT (Scale Invariant Feature Transform) was developed for image feature generation in object recognition applications.

6. Claims 5, 7, 8 & 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Zlatsin et al.* (USPN 6,377,296 B1) in view of *McDowall et al.* (USPN 6,128,004).

Zlatsin et al. has been discussed above and does not describe the limitations of claims 5, 7, 8 & 9. However, *McDowall et al.* describes the limitations of claims 5, 7, 8 & 9.

Regarding claim 5. The method as defined in claim 1, further comprising performing gesture calibration. [see C 7, L 19-58] It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *McDowall et al.* because the data gloves can be used in virtual reality environments or "worlds" with varying degrees of complexity. The are potentially useful for selection of virtual object in a virtual environment. By correlating the position of the hand and the shape of the hand as sensed by the sensors on the glove to the position, shape and assigned function of a virtual object within the virtual environment, the host computer can interpret hand positions as instructions to manipulate the objects. More simply, by sensing the shape of the hand, the host computer can interpret the input as commands to the host system. [see C 1, L 49-60]

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Regarding claim 7. The method as defined in claim 1, further comprising instructing the user to perform at least one gesture during a calibration operation. [see C 7, L 19-58] It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *McDowall et al.* because the data gloves can be used in virtual reality environments or "worlds" with varying degrees of complexity. The are potentially useful for selection of virtual object in a virtual environment. By correlating the position of the hand and the shape of the hand as sensed by the sensors on the glove to the position, shape and assigned function of a virtual object within the virtual environment, the host computer can interpret hand positions as instructions to manipulate the objects. More simply, by sensing the shape of the hand, the host computer can interpret the input as commands to the host system. [see C 1, L 49-60]

Regarding claim 8. The method as defined in claim 1, wherein the first gesture is a diagonal sweep of a fingertip across a page of the printed media. [see C 2, L 53-67] It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *McDowall et al.* because the data gloves can be used in virtual reality environments or "worlds" with varying degrees of complexity. The are potentially useful for selection of virtual object in a virtual environment. By correlating the position of the hand and the shape of the hand as sensed by the sensors on the glove to the position, shape and assigned function of a virtual object within the virtual environment, the host computer can interpret hand positions as instructions to manipulate the objects. More simply, by sensing the shape of the hand, the host computer can interpret the input as commands to the host system. [see C 1, L 49-60]

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Regarding claim 9. The method as defined in claim 1, wherein the first gesture is a movement of a fingertip beneath at least a first word. [see C 2, L 53-67] It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *McDowall et al.* because the data gloves can be used in virtual reality environments or "worlds" with varying degrees of complexity. The are potentially useful for selection of virtual object in a virtual environment. By correlating the position of the hand and the shape of the hand as sensed by the sensors on the glove to the position, shape and assigned function of a virtual object within the virtual environment, the host computer can interpret hand positions as instructions to manipulate the objects. More simply, by sensing the shape of the hand, the host computer can interpret the input as commands to the host system. [see C 1, L 49-60]

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Zlatsin et al.* (USPN 6,377,296 B1) in view of *Douglass et al.* (USPN 6,215,892).

Zlatsin et al. has been discussed above and does not describe the limitation of claim 6. However, *Douglass et al.* describes the limitation of claim 6.

Regarding claim 6. *Douglass et al.* describes the method as defined in claim 1 further comprising performing color balancing calibration based at least in part on a viewed portion of a userhand. [see C 15, L 57-67] It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *Douglass et al.* because the processing of images acquired in the automated scanning of the present invention preferably

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includes the steps of transforming the image to a different color space; filtering the transformed image with a low pass filter; dynamically thresholding the pixels of the filtered image to suppress background material; performing a morphological function to remove artifacts from the thresholded image; analyzing the thresholded image to determine the presence of one or more regions of connected pixels having the same color; and categorizing every region having a size greater than a minimum size as a candidate object of interest. [see C 2, L 55-65]

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Zlatsin et al.* (USPN 6,377,296 B1) in view of *Xiong* (USPAP Pub. No.: 2003/0214481 A1).

Zlatsin et al. has been discussed above and does not describe the limitation of claim 10.

However, *Xiong* describes the limitation of claim 10.

Regarding claim 10, *Xiong* describes the method of claim 1 wherein the first gesture is a finger tapping movement. [see FIG. 3B]]. It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *Xiong* because *Xiong* relates to a finger worn and operated computer input device and method of use, more particularly, a device and method of use for controlling the positioning, movement and operation of a viewpoint or cursor on a display screen associated with a computer. [0004]

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9. Claims 14, 15, 44, 45 & 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Zlatsin et al.* (USPN 6,377,296 B1) in view of *Munyan* (USPN 5,761,485).

Zlatsin et al. has been discussed above and does not describe the limitations of claims 14, 15, 44, 45 & 51. However, *Munyan* describes the limitations of claims 14, 15, 44, 45 & 51.

Regarding claim 14. *Munyan* describes the method as defined in claim 1, wherein the portion of the retrieved information is a table contents corresponding to the printed media. [see Abstract & C 7; L 16-32] It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *Munyan* because *Munyan* relates to information and multimedia storage and display systems and specifically to paperless books, personal electronic books, personal electronic communicators and readers, personal electronic message communicators, personal electronic facsimile communicators, on-line computer database communicators, and downloadable computer database products such as artwork, audio clips, books, E-mail, faxes, games, magazines, movies, musical compositions, newspapers, photographs, software and video clips.

Regarding claim 15. the method as defined in claim 1, wherein the portion of the retrieved information includes a definition retrieved from an electronic dictionary. [see Abstract & C 7, L 16-32] It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *Munyan* because *Munyan* relates to information and multimedia storage and display systems and specifically to paperless books, personal electronic books, personal electronic communicators and readers, personal electronic

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message communicators, personal electronic facsimile communicators, on-line computer database communicators, and downloadable computer database products such as artwork, audio clips, books, E-mail, faxes, games, magazines, movies, musical compositions, newspapers, photographs, software and video clips.

Regarding claim 44. The apparatus as defined in claim 36, further comprising a dictionary.

[see Abstract & C 7, L 16-32] It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *Munyan* because *Munyan* relates to information and multimedia storage and display systems and specifically to paperless books, personal electronic books, personal electronic communicators and readers, personal electronic message communicators, personal electronic facsimile communicators, on-line computer database communicators, and downloadable computer database products such as artwork, audio clips, books, E-mail, faxes, games, magazines, movies, musical compositions, newspapers, photographs, software and video clips.

Regarding claim 45. The apparatus as defined in claim 36, further comprising a topic-specific dictionary. [see Abstract & C 7, L 16-32] It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *Munyan* because *Munyan* relates to information and multimedia storage and display systems and specifically to paperless books, personal electronic books, personal electronic communicators and readers, personal electronic message communicators, personal electronic facsimile communicators, on-line computer database communicators, and downloadable computer database pro-

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ducts such as artwork, audio clips, books, E-mail, faxes, games, magazines, movies, musical compositions, newspapers, photographs, software and video clips.

Regarding claim 57. The apparatus as defined in claim 51, further comprising a dictionary. [see Abstract & C 7, L 16-32] It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *Munyan* because *Munyan* relates to information and multimedia storage and display systems and specifically to paperless books, personal electronic books, personal electronic communicators and readers, personal electronic message communicators, personal electronic facsimile communicators, on-line computer database communicators, and downloadable computer database products such as artwork, audio clips, books, E-mail, faxes, games, magazines, movies, musical compositions, newspapers, photographs, software and video clips.

10. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Zlatsin et al.* (USPN 6,377,296 B1) in view of *Etienne-Cummings et al.* (USPN 6,897,426 B1).

Zlatsin et al. has been discussed above and does not describe the limitation of claim 22.

However, *Etienne-Cummings et al.* describes the limitation of claim 22.

Regarding claim 22. *Etienne-Cummings et al.* describes the method of claim 1 wherein the visual sensor includes at least one of a CCD imager, a CMOS imager, and an infrared imager. [see Abstract] It would have been obvious at the time the invention was made to a persons having

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ordinary skill in the art to combine *Zlatsin et al.* with *Etienne-Cummings et al.* because CMOS integrated circuits technology readily allows the incorporation of photodetector arrays and image processing circuits on the same silicon die. This has led to the recent proliferation in cheap and compact digital cameras, system-on-a-chip video processors, and many other cutting-edge commercial and research imaging products. [see C 1, L 13-18]

11. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Zlatsin et al.* (USPN 6,377,296 B1) in view of *Marks* (USPN 7,113,193).

Zlatsin et al. has been discussed above and does not describe the limitation of claim 30.

However, *Marks* describes the limitation of claim 30.

Regarding claim 30, the method as defined in claim 23 further comprising performing lighting calibration. [see C 2, L 25-43] It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *Marks* because problems continue to hinder successful object tracking, and a particularly difficult problem is extracting precisely only those pixels of a video image which correspond unambiguously to an object of interest. For example, although movement of an object having one color against a solid background of another color, where the object and background colors vary distinctly from one another, can be accomplished with relative ease, tracking of objects, even if brightly colored, is not so easy in the case of multi-colored or non-static backgrounds. Changes in lighting also dramatically affect the apparent color of the object as seen by the video camera, and thus object tracking methods which rely on detecting a particular colored object are highly susceptible to

error or require constant re-calibration as lighting conditions change. The typical home use environment for video game programs demands much greater flexibility and robustness than possible with conventional object tracking computer vision systems. [see C 2, L 25-43]

12. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Zlatsin et al.* (USPN 6,377,296 B1) in view of *Mead* (USPN 6,088,484).

Zlatsin et al. has been discussed above and does not describe the limitation of claim 41.

However, *Mead* describes the limitation of claim 41.

41. The apparatus as defined in claim 36, wherein the image sensor is a pan and scan camera. [see C 5, L 22-42] It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *Mead* because *Mead* relates generally to methods and systems for information transmission with digital signal processing including encoding and decoding signals representing aural or visual communication including personalization with an object library. [see C 1, L 7-11]

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13. Claims 50 & 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Zlatsin et al.* (USPN 6,377,296 B1) in view of *Vogel* (USPN 5,467,447).

Zlatsin et al. has been discussed above and does not describe the limitations of claims 50 & 56.

However, *Vogel* describes the limitations of claims 50 & 56.

Regarding claim 50. The apparatus as defined in claim 36, further comprising a character recognition module that converts images of text into text. [see C 11, L 1-12] It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *Vogel* because there is a strong need for a system which will deter people from copying books in libraries, an act which could infringe copyright. [see C 2, L 11-14]

Regarding claim 56. The apparatus as defined in claim 51, further comprising a character recognition module that converts images of text into text. [see C 11, L 1-12] It would have been obvious at the time the invention was made to a persons having ordinary skill in the art to combine *Zlatsin et al.* with *Vogel* because there is a strong need for a system which will deter people from copying books in libraries, an act which could infringe copyright. [see C 2, L 11-14]

Claim Objection(s)

14. Claims 17-21, 24, 25, 26, 28, 32-35, 38, 40, 42 & 43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Correspondence Information

15. Any inquires concerning this communication or earlier communications from the examiner should be directed to Michael B. Holmes, who may be reached Monday through Friday, between 8:00 a.m. and 5:00 p.m. EST. or via telephone at (571) 272-3686 or facsimile transmission (571) 273-3686 or email Michael.holmesb@uspto.gov.

If you need to send an Official facsimile transmission, please send it to (703) 746-7239.

If attempts to reach the examiner are unsuccessful the Examiner's Supervisor, Anthony Knight, may be reached at (571) 272-3687.

Hand-delivered responses should be delivered to the Receptionist @ (Customer Service Window Randolph Building 401 Dulany Street Alexandria, VA 22313), located on the first floor of the south side of the Randolph Building.

Michael B. Holmes

Patent Examiner

Artificial Intelligence

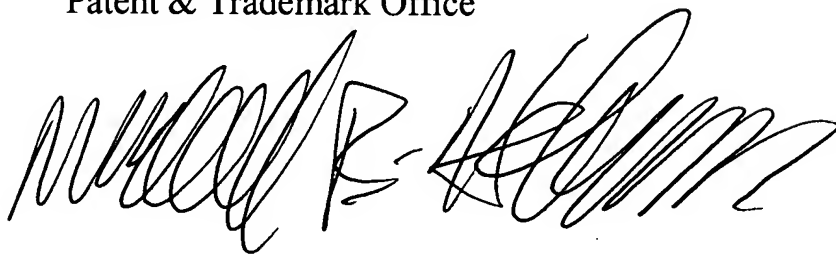
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United States Department of Commerce

Patent & Trademark Office

Friday, November 10, 2006

MBH

A handwritten signature in black ink, appearing to read 'Michael B. Holmes', is written over the printed name and title.